

## A New Interpretation of some Troublesome Dignathodontid Species and Genera<sup>1</sup> (Chilopoda: Geophilomorpha)

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In 1954, R. V. Chamberlin presented a redescription of what he took to be *Tomotaenia parviceps* (Wood), 1862. As junior synonyms he listed the following: *Strigamia epileptica* Wood, 1862; *Scolioplanes imperialis* Broelemann, 1896; *Linotania rubelliana* Chamberlin, 1904; *Paraplans californicus* Verhoeff, 1938. His redescription was based upon the holotype of Wood's *epileptica* and upon non-typical Californian material.

In fact, the giant red polypod *Tomotaenia* to which he refers is actually reducible to two forms that are very similar but presumably different species. The most obvious character distinguishing the two is the condition of the ultimate pedal pretergite. In one form it is bilaterally fissate; the pleurites are separated from the pretergite by deep fissures. In the other form the pleurites are wholly fused with the pretergite, and there is no trace of fissures on each side. His study of the *epileptica* holotype showed that its ultimate pretergite is not fissate. But since the holotype of *parviceps* cannot be found, and since its original description gives no clue to the condition of this critical character, he could only have guessed that it is conspecific with *epileptica* and the others. I believe, therefore, that synonymizing *parviceps* with *epileptica* and the other species, and ascribing the non-fissate condition to *parviceps*, are untenable. Accordingly, I propose that *parviceps* be set aside as a *species inquirenda* within *Tomotaenia*, and that those species with non-fissate ultimate pretergites be referred to the next oldest appropriate synonym, *epileptica*. Broelemann's *imperialis* and Chamberlin's *rubelliana* must also be considered *inqui-*

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*rendae*, but, as we shall see, Verhoeff's *californicus*, as a junior synonym of an older name, can be referred to the sibling, fissate species.

The oldest species of *Tomotaenia* with a fissate ultimate pretergite is *Diplochora fusata* Attems, 1903. When Attems proposed *Diplochora* for this single Mexican species, his major diagnostic generic character was its supposed labral state of atrophy (see Attems, 1903, pp. 215, 281). On page 281 Attems described the labrum as follows: "Oberlippe verkümmert, besonders der Mitteltheil . . .," and further: "Die Oberlippe ist sehr rudimentär, in der Mitte ist von ihr nichts deutlich zu sehen. . . ." In 1929, p. 219, he went even further and stated that the labral midpiece was absent, or, p. 229, "ganz reduziert." Again, this was his chief generic diagnostic distinction separating *Diplochora* from the other dignathodontid genera.

When I examined the holotype of *fusata* in Vienna in 1960, I found it to be a *Tomotaenia* identical with the California species having a fissate ultimate pretergite. The allegedly atrophied labral midpiece is easily explained. That structure, which is normally extremely delicate and weakly sclerotized in any case, in Attems' holotype obviously had been largely destroyed, actually dissolved, by prolonged treatment in potassium hydroxide. Despite its extremely poor condition, the vestiges of the holotype's labral midpiece are still clearly discernible. As I have noted, in all other respects the Attems specimen is identical with the fissate Californian material that I have studied.

It is also possible at this time to clarify the identity and allocation of *Paraplanes californicus* Verhoeff, 1938.<sup>2</sup> In 1960 and 1961 I studied the two syntypes at Munich. Both are clearly conspecific with the holotype of *fusata* and with the other fissate Californian specimens that I have examined. One syntype is a male with 61 pairs of legs and is about 64 mm long. The other, a female, has 71 pairs of legs and is about 72 mm long. The female is here selected as the lectotype. I have labelled the Munich specimens accordingly.

<sup>2</sup>The species was described as new in two different articles in 1938: Zoologischer Anzeiger, issued June 15th; Zoologische Jahrbücher, issued December 12th. Thus the former must be considered to be the organ of original publication.

Finally, I believe it is also possible now to make a disposition of the name *Paraplanes*, which Verhoeff proposed in 1933, p. 22, for the reception of a single species, *svenhedini*, from China. Unfortunately, the holotype is not in the Verhoeff Collection at Munich. According to the authorities there, it may well have been lost during the war. However, two kinds of evidence strongly suggest it to be referable to Cook's *Tomotaenia*. First, the original description of *svenhedini* is very clearly suggestive of the Cook genus. Although Verhoeff neglected to mention in the original description whether the ultimate pedal pretergite was fissate or not, in 1938, p. 372, he did state that it is. Secondly, I have studied fissate Chinese specimens that are surely referable to *Tomotaenia* and, if they are not conspecific with *svenhedini*, then they are very closely similar to it. Provisionally we may synonymize *Paraplanes* beneath *Tomotaenia*. The foregoing is summarized by the following conspectus.

*Species inquirendae: Strigamia parviceps* Wood, 1862, p. 49. *Scolioptanes imperialis* Broelemann, 1896, p. 60. *Linotaenia rubelliana* Chamberlin, 1904, p. 56.

**Tomotaenia** Cook, 1895.

Type Species: *Strigamia parviceps* Wood, 1862 [= *Tomotaenia parviceps* (Wood)]. (By original designation.)

**Paraplanes** Verhoeff, 1933. (= **Tomotaenia**, New Synonymy.)

Type Species: *Paraplanes svenhedini* Verhoeff, 1933 [= *Tomotaenia svenhedini* (Verhoeff)]. (Monobasic.)

**Diplochora** Attems, 1903. (= **Tomotaenia**, New Synonymy.)<sup>3</sup>

Type Species: *Diplochora fusata* Attems, 1903 [= *Tomotaenia fusata* (Attems)]. (Monobasic.)

**Tomotaenia epileptica** (Wood, 1862. (New Combination.)

*Strigamia epileptica* Wood, 1862, p. 49. (Ultimate pretergite non-fissate.)

<sup>3</sup> Should a subgeneric arrangement be desirable, the non-fissate species would be referable to the nominate generic name, whereas the fissate species would take *Diplochora* as their subgeneric designation.

**Tomotaenia fusata** (Attems), 1903. (New Combination.)

*Diplochora fusata* Attems, 1903, p. 281. (Ultimate pretergite fissate.)

*Paraplanes californicus* Verhoeff, 1938, p. 283.

Following is a description of *Tomotaenia fusata*. It is based upon the 17 specimens that I have examined. All available locality data are given in the underlying list. All but the Attems and Verhoeff types are in the collection of the U. S. National Museum.

MEXICO: Ventanas (holotype of *fusata*). Baja California, station 1, "about 4 miles down," I.1.25, A. D. Harvey.

CALIFORNIA. Berkeley (types of *californicus*). South of Pascedera, II.29.1929, O. F. Cook. Menlo Park, Dr. Horning. Berkeley, II.28.1958, R. V. Williams. Santa Cruz, La Playa Canyon, IV.1913. Pala and Temecula, II.12.1929. Fallbrook, I.1925, O. F. Cook. Vista, II.12.1929. South side of Fremont Pass, II.28.1929, O. F. Cook. San Mateo County, III.1933, P. C. Ting.

**Tomotaenia fusata** (Attems). (Composite Description.)

COLLECTION DATA. Holotype in the Attems Collection of the Naturhistorisches Museum, Vienna; mouthparts and head on microscopic slide, remainder of specimen in alcohol. Collected at Ventanas in western Mexico by Rorrer, March 3, 1883.

GENERAL. Length: Females (7), 44-75 mm; Males (10), 37-64 mm. Pedal Segments: Females, 71 = 3, 73 = 3, 75 = 1; Males, 65 = 1, 67 = 2, 69 = 4, 71 = 2, 73 = 1. Color: Undoubtedly badly faded in all specimens seen. In very old specimens dorsum varying from deep sordid brown to very pale yellow. In fresher material dorsum and head brownish-red to sordid orange-red; with numerous tiny white dots, each pierced by a setal alveolus; legs yellowish to white; sternites white or nearly white, thereby contrasting markedly with deeply pigmented dorsum. Shape: Approximately the anterior third of the body gradually (not abruptly) attenuate anteriorly; rear of body very slightly attenuate. ANTENNAE. Filiform. Setae all

very short; gradually increasing in number distally from second article. Ultimate article: About a third longer than the penult; on ectal surface with a small elongate patch of very short, hyaline, inflated setae. **CEPHALIC PLATE.** Dorsally prominently domed; slightly longer than wide; laterally gently excurved, rear margin evenly rounded, anteriorly slightly rostrate. Frontal suture prominent and evenly curved. Prebasal plate exposed in most specimens; very narrow antero-posteriorly, divided into right and left halves. **CLYPEUS.** Paraclypeal sutures extremely vague in a few specimens and not discernible in most. Centrally with two shallowly areolate, pigmented, alate areas (plagulae), these separated by a long midlongitudinal strip of coarser areolation the area surrounding the alate areas is colorless, coarsely, irregularly, finely areolate. Setae: Postantennals, 4; midclypeals (between the alate areas), 2, one behind the other; no prelabrals. Just posterior to postantennal setae a wide procurved fold (or suture?). **LABRUM.** Midpiece: Wide and deep; manifest as a partially amalgamated group of colorless, irregular, flabby, "teeth" or serratures. Sidepieces: Degenerate, thin, short; colorless or weakly pigmented. Each futura (komendibulares Gerüst) essentially T-shaped and well-pigmented. **EPIPHARYNX.** Conspicuously divided into deeply pigmented right and left sides, these separated by a U-shaped hyaline area. Each sidepiece shallowly areolate, not minutely scaly. Central part with numerous hyaline, short, scabriform papillae. Preoral sensilla in number 6-7, arranged in various patterns. **FIRST MAXILLAE.** Coxosternal lappets absent. Medial lobes very indistinctly separated from coxosternum. Each telopodite with a short, broad, wholly or largely concealed lappet. **SECOND MAXILLAE.** Isthmus undivided; wide from side to side; very narrow antero-posteriorly. Telopodite: First article with distinct dorsal and ventral condyles basally; terminal claw of ultimate article basally broad, relatively short, about half as long as its article. **PROSTERNUM.** With prominent white maculae. Antero-centrally with a large, bilobed white area, the surrounding pigmentation dark and essentially matching that of cephalic plate. **PREHENSORIAL TELOPODITE.** Tarsungula: In cross-

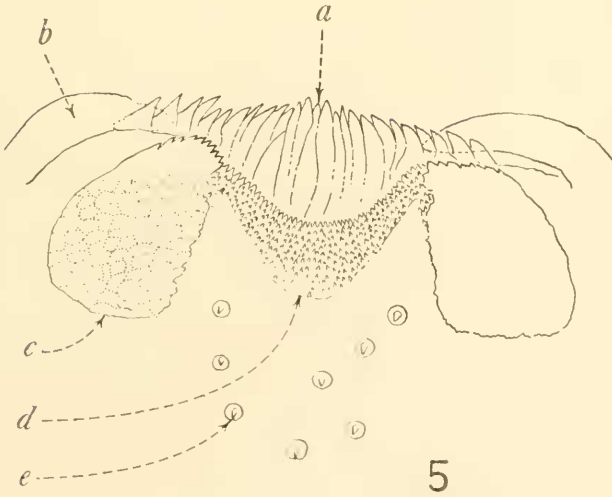
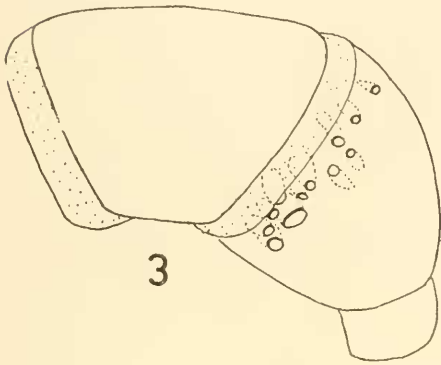
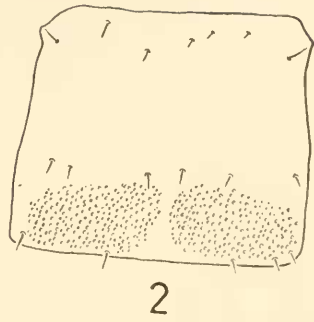
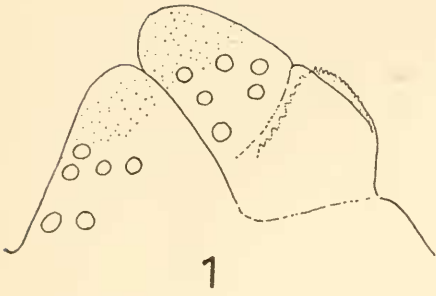
section not extremely flattened or blade-like; basal denticle massive, essentially thumb-shaped. Tibioid without a denticle but its entirely mesal surface swollen and produced. Poison calyx always massive and much longer than wide; poison gland extending posteriorly beyond limit of telopodite and into prehensorial somite. TERGITES. Surface roughened, not bisulcate. Setae very sparse and short. STIGMOPLEURITES. Anterior to each spiracle usually 2 setae; these frequently broken off but their positions shown by their alveoli. LEGS. Setae very short and sparse. Pretarsi: The anterior parungues about a fifth as long as the ungues and slightly more robust and longer than the posterior parungues. STERNITES. Setae very sparse, extremely short. Each deeply midlongitudinally grooved, the groove narrowly dividing the posterior porefields. Each sternite with two posterior porefields; these very narrowly separated on the more anterior sternites, but more widely separated on rear of body; pores very numerous and tiny; porefields present on sternites 1 through the penultimate. Anterior lateral porefields absent; in their positions 1 to about 4 minute, obscure pores. Subcoxal porefields present and conspicuous on somites 1 through the penultimate. ULTIMATE PEDAL SEGMENT. Pretergite bilaterally fissate, thus separated by deep fissures from its pleurites. Tergite much wider than long; sides slightly excurved and convergent posteriorly; rear margin broadly rounded. Presternite broadly membranous centrally and so apparently divided into

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#### EXPLANATION OF FIGURES

*Tomotaenia fusata* (Attems). Adult female (not a type) from Berkeley, California.

1. First maxillary telopodite and medial lobe, left. Membranous areas stippled; setal alveoli shown; lappet concealed behind basal article of telopodite.
2. Sternite from anterior third of body. Principal setae shown.
3. Ultimate pedal sternite and left coxopleuron. Setae deleted; fleshy membranous outgrowth shown stippled bordering sternite.
4. Right prehensor. Setae deleted; poison calyx stippled; outline of poison gland shown in dashes.
5. Labrum and epipharynx. a = fleshy, membranous teeth of midpiece. b = right labral sidepiece. c = right plate of epipharynx. d = central portion of epipharynx. e = one of the preoral sensilla.



right and left halves. Sternite: Midlongitudinally grooved, this groove deeper in larger specimens. Greatest width far exceeding length. Sides nearly straight to greatly excurved, always strongly convergent posteriorly; rear margin essentially straight to prominently incurved or embayed, depending upon sex and degree of telescoping of postpedal segments. In most specimens (and always in the largest ones) the sternite bordered on each side by a hyaline, membranous or fleshy excrescence, an outgrowth apparently originating from beneath the sternite. Coxopleuron: Moderately inflated. Its ventral surface in males (not females) densely clothed with minute setae. Pores always restricted to the area along and beneath the sternite; in younger specimens these pores partly or entirely concealed in a fossa; in older specimens pores are largely exposed in their uncovered fossae, the fossae varying greatly in depth, in some specimens the fossae essentially obliterated. Male ultimate leg: In younger specimens only slightly inflated and with few ventral setae; in the largest males the legs enormously swollen and markedly flattened, ventrally densely clothed with minute setae. Female ultimate leg: In all only slightly longer and more robust than the penult legs; ventrally without dense vestiture of minute setae. The pretarsal claw is as long as that of penult legs (whereas in mature males it is fully formed but minute). POSTPEDAL SEGMENTS. Anal pores large, lateral. Male gonopods distinctly bipartite. Female gonopods unipartite, conspicuously flattened, joined medially.

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